



Fact Sheet

United States Nuclear Regulatory Commission

Office of Public Affairs

Washington DC 20555

Telephone: 301/415-8200 E-mail: opa@nrc.gov

Nuclear Security Enhancements Since Sept. 11, 2001

Nuclear Facility Security

The NRC took security seriously well before the September 11, 2001, terrorist attacks and has redoubled its efforts since then in light of the increased threat. Nuclear facilities, including nuclear power plants, already had a number of security and safeguards measures in place in accordance with Commission regulations, making them among the most robust and well-protected civilian facilities in the country. Nevertheless, the events of September 11, 2001, have resulted in enhancements to ensure that these facilities remain secure.

Following the September 2001 terrorist attacks, the NRC immediately advised nuclear facilities to go to the highest level of security in accordance with the system in place at the time. A series of Advisories, Orders, and Regulatory Issue Summaries have been issued to further strengthen security at NRC-licensed facilities including power reactors, decommissioning reactors, independent spent fuel storage installations, research and test reactors, uranium conversion facilities, gaseous diffusion plants, fuel fabrication facilities, certain users of radioactive materials, and transporters of spent fuel and radioactive materials.

Details of the specific actions taken are sensitive, but for facilities such as power reactors, they generally include:

- increased patrols;
- augmented security forces and capabilities;
- additional security posts;
- installation of additional physical barriers;
- vehicle checks at greater stand-off distances;
- enhanced coordination with law enforcement and military authorities;
- more restrictive site access controls for all personnel; and
- expanded, expedited, and more thorough employee background checks.

Security Exercises

The NRC temporarily suspended force-on-force security exercises immediately following the terrorist attacks of September 2001 due to concerns about their impact on security at the plants in the heightened threat environment. In the summer of 2002, tabletop exercises -- facilitated discussions using credible scenarios -- were conducted involving a wide array of Federal, State, and local law enforcement and emergency planning officials.

In February 2003, the NRC resumed security exercises at operating nuclear power plants as part of a pilot project to evaluate the impacts of threat characteristics and security enhancements, as well as to enhance the exercise process. The NRC is currently conducting these exercises at a rate of approximately two per month. Once the pilot program is complete, these exercises will be carried out at each nuclear power plant on a three-year cycle instead of the eight-year cycle that had been implemented prior to September 11, 2001. Additional information is available at: <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/force-on-force.html>.

The force-on-force exercise is the primary means of conducting performance-based assessments of a licensee's security force and its ability to protect against the design basis threat as required by NRC regulations. Licensees' security enhancements have reflected the NRC's "defense-in-depth" safety philosophy, in which requirements for plant safety features and mitigation strategies, security measures, and emergency preparedness are addressed in an integrated manner.

Recent force-on-force exercises have utilized Multiple Integrated Laser Engagement System (MILES) equipment to enhance the realism of exercises. MILES gear is a ground combat training system used by the Department of Defense (DOD), the Department of Energy (DOE), and other agencies, using modified weapons fitted with laser transmitters that add realism to exercises by simulating combat between protective and adversary forces.

Security Personnel

The NRC issued Orders on April 29, 2003, to power reactor licensees to augment additional training and qualifications requirements for security personnel. These Orders include more frequent firing of weapons, more realistic training under a broader range of conditions, and firing against moving as well as fixed targets. In order to minimize security personnel fatigue, the agency also issued Orders on the same day to require additional measures for security personnel fitness for duty and work hours controls. It ensures that excessive work hours do not challenge the ability of nuclear power plant security personnel to remain vigilant and effectively perform their duties.

Comprehensive Security Evaluation and Vulnerability Studies

Shortly after September 11, 2001, the NRC undertook a comprehensive re-evaluation of the agency's safeguards and security program, regulations, and procedures that has resulted in

numerous security improvements, most of which are underway. As part of this review, NRC has revised the adversary attributes in the design basis threats (DBTs) for radiological sabotage and for theft or diversion.

The DBT describes the adversary force composition and characteristics against which licensees design their physical protection systems and response strategies. The DBT applies to power reactors and certain nuclear fuel fabrication facilities. Meetings to discuss the proposed revisions have been held with representatives of the nuclear industry cleared to receive such information, and authorized Federal and State agencies. The NRC issued Orders to applicable NRC licensees on April 29, 2003, requiring them to revise their physical security plans and safeguards contingency plans by April 2004, and to have all protective measures in place to meet the revised DBT by October 2004. The NRC has received all licensees' revised security plans..

The NRC believes that most effective strategy for preventing an aircraft attack and protecting our nation's infrastructure continues to be through enhanced measures such as airport passenger and baggage screening, strengthening of cockpit doors and the Air Marshal program.

The NRC has conducted an extensive analysis of the potential vulnerability of nuclear power plants to aircraft attacks. While this analysis is classified, our vulnerability studies confirm that the likelihood of damaging the reactor core and releasing radioactivity that could affect public health and safety is low. Further, the studies confirm that even in the unlikely event of a radiological release due to terrorist use of a large aircraft, NRC's emergency planning basis remains valid. Thus, we believe that nuclear power plant safety, security, and emergency planning programs continue to provide reasonable assurance of adequate protection of the public health and safety.

We recognize that a large aircraft would cause significant damage to a civilian industrial facility and a corresponding psychological impact on the surrounding community and the nation as a whole. Nonetheless, we believe that nuclear power plants remain the most heavily protected civilian facilities in the country. They were so before the events of 9-11 and have been further enhanced since then, by Orders issued by the NRC. In emergency scenarios involving operating reactors, spent fuel pools and dry-cask storage installations, the NRC remains certain that enough time will be available to protect the public near those facilities. Given these enhancements made to safety, security, and emergency preparedness, the potential radiological consequences of an aircraft attack are very low.

In addition, certain interim compensatory measures have been put in place -- improved capabilities to respond to an event that results in damage to large areas of a nuclear power plant from explosions or fires. Additional measures have been put in place to protect against land attacks, including the use of a vehicle bomb, and against water-borne attacks.

The NRC also has taken steps to enhance cybersecurity at nuclear power plants. Since September 11, 2001, the NRC has issued a series of safeguards advisories and orders requiring

nuclear power plant licensees to take certain actions, and many of them address cyber security. Additional measures to enhance cybersecurity are being considered as part of the comprehensive review of NRC's security program.

The NRC is working with appropriate Federal agencies to deal with a potential airborne threat. For example, the NRC has worked with the Federal Aviation Administration and the Transportation Security Administration to put in place a Notice to Airmen advising pilots to not circle or loiter above nuclear power plants or they can expect to be interviewed by law enforcement personnel.

Security Against Dirty Bombs

A radiological dispersal device (RDD) or "dirty bomb" is a conventional explosive containing radioactive material that could be used to spread radioactive contamination. Although these devices would be unlikely to cause serious health effects beyond those caused by the detonation of the explosive, they could have a significant psychological impact, by causing fear, panic, and disruption. Additional information on dirty bombs is available at:
<http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/dirty-bombs.html>.

The NRC has been working with the Department of Energy (DOE), the Federal Bureau of Investigation, the International Atomic Energy Agency and others to enhance physical protection and control of sources of radioactive material that present the highest risk if used by a terrorist in an RDD. The work with DOE is complete and has now been captured in an appendix to the International Atomic Energy Agency's Revised Code of Conduct on the Safety and Security of Radioactive Sources. Elements of "cradle-to-grave" security enhancements will include:

- verification of the legitimacy of applicants for licenses to use radioactive material;
- requirements governing the shipment, storage and use of high-risk sources;
- controls on access to radioactive sources to prevent diversion by an insider;
- tracking and inventorying high-risk sources to ensure they haven't been lost or stolen;
- export and import controls on high-risk sources; and
- more frequent inspections to verify the adequacy of regulatory controls and measures to ensure safe disposal.

In June 2003, the NRC also formed a Materials Security Working Group and a related Steering Committee to work with the States to enhance security for high-risk sources. On June 6, 2003, an Order was issued to all panoramic irradiator and underwater irradiator licensees requiring implementation of additional measures to enhance security. This was the first of a series of additional security actions to be taken for NRC and Agreement State licensees possessing high-risk radioactive material. On Jan. 12, 2004, the NRC issued an Order to manufacturers and distributors of nuclear materials, also requiring implementation of additional security measures. NRC also proposed a rule to enhance security of small gauges that contain radioactive material.

Coordination and Communications

The NRC has expanded its involvement with the Federal Bureau of Investigation, other Federal intelligence and law enforcement agencies, NRC licensees, and military, State and local authorities. Communications have been expanded with the Department of Homeland Security (DHS), the Department of Defense, the Federal Aviation Administration, and others. The NRC also maintains close communications with nuclear regulators in Canada and Mexico, and has discussed security enhancements with nuclear regulatory bodies in other countries (including United Kingdom, France, Germany, Japan, and Romania).

In February 2003, NRC established a protected server system to facilitate exchange of sensitive information between NRC and licensees and authorized State officials. In June 2003, NRC and DHS co-sponsored a two-day Homeland Security Workshop on civilian nuclear security and incident response issues for State officials at NRC headquarters. This workshop was attended by approximately 300 participants from DHS, State Homeland Security Advisors, State Liaison Officers, State Radiation Control Directors, and other Federal and State governments and organizations. This workshop further strengthened NRC and DHS relations with these key State officials by increasing their awareness of DHS and NRC initiatives relating to homeland security and incident response.

NRC Emergency Operations Center and Emergency Plans

The NRC has increased staffing of its Emergency Operations Center in headquarters around the clock that aids in the prompt dissemination of pertinent information to all concerned, including licensees, Federal, and State officials.

The NRC has increased its participation in emergency exercises related to security and counter-terrorism. These exercises have included dealing with dirty bombs, hijacked aircraft, stolen radioactive material, and sabotage of nuclear facilities. In May 2003, the NRC participated in the TOPOFF 2 exercise, the second Congressionally mandated national exercise involving weapons of mass destruction and bioterrorism, and has been extensively involved in the lessons-learned process, particularly in the areas of radiological dispersal device consequence modeling and recovery.

The Agency continues to work with DHS and other Federal agencies on the integration of Federal Response Plans into a unified National Response Plan and National Incident Management System and on refinement of the National Preparedness Policy.

Other Security Actions

To consolidate and streamline selected security, safeguards, and incident response responsibilities and resources, the NRC established an Office of Nuclear Security and Incident Response (NSIR) in April 2002. The creation of NSIR streamlines decision-making, improves

the timeliness of information dissemination, and provides a more visible and effective point of contact and counterpart to the Department of Homeland Security, as well as other Federal agencies. In June 2003, the Agency established the position of Deputy Executive Director for Homeland Protection and Preparedness to increase the agency's attention to cross-cutting issues that affect security, incident response, emergency preparedness, vulnerability assessments and mitigation strategies, and external integration of comprehensive strategies for these areas.

The NRC developed a new Threat Advisory and Protective Measures System that corresponds to the color-coded Homeland Security Advisory System which allows government officials to communicate the nature and degree of terrorist threats consistently nationwide. NRC's system identifies specific actions to be considered by NRC licensees for each threat level to counter projected terrorist threats. If a credible threat emerges against a specific nuclear facility, additional protective measures may be mandated even without a change in the overall threat level.

Security at NRC

A host of enhanced security measures have been put in place at NRC headquarters in Rockville, MD, including the installation of concrete vehicle barriers, increased armed guards, stringent access procedures and ongoing intra-agency communications to keep all NRC employees informed of the latest developments. Security was also bolstered at NRC's four regional offices in King of Prussia, PA, Atlanta, GA, Lisle, IL, and Arlington, TX.

The NRC conducted a comprehensive review and revision of its web site to remove sensitive information which could be of interest to terrorist planners, while it continues to provide the public with appropriate material on the NRC, its role, and other useful information. The NRC also developed and implemented guidelines to identify sensitive information and is developing a new procedure regarding public meetings on security issues.

June 2004